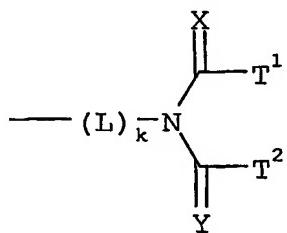


## [CLAIMS]

1. A polymer comprising a phenolic monomeric unit wherein the H atom  
 5 of the hydroxy group of the phenolic monomeric unit is replaced  
 by a N-imide group Q having the structure



wherein L is a linking group,

wherein k is 0 or 1,

10 wherein L is covalently bound to the O atom of the polymer for k is 1, or wherein the N atom of the N-imide group is covalently bound to the O atom of the polymer for k is 0,  
 wherein X or Y are independently selected from O or S, and  
 wherein T<sup>1</sup> and T<sup>2</sup> represent a terminal group.

- 15 2. A polymer according to claim 1 wherein the terminal groups T<sup>1</sup> and T<sup>2</sup> are independently selected from an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein T<sup>1</sup> and T<sup>2</sup> together with the N-imide group represent the necessary atoms to form a cyclic structure, or wherein T<sup>1</sup> and T<sup>2</sup> represent the following structures -L<sup>1</sup>-R<sup>1</sup> and -L<sup>2</sup>-R<sup>2</sup>,

wherein L<sup>1</sup> and L<sup>2</sup> represent independently a linking group,

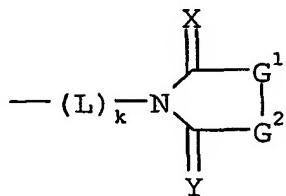
wherein R<sup>1</sup> and R<sup>2</sup> are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, halogen, -CN, or -NO<sub>2</sub>,

or wherein two groups selected from each L<sup>1</sup>, L<sup>2</sup>, R<sup>1</sup> and R<sup>2</sup>

- 39 -

together represent the necessary atoms to form a cyclic structure.

3. A polymer according to claims 1 or 2 wherein the N-imide group Q  
5 has the following formula

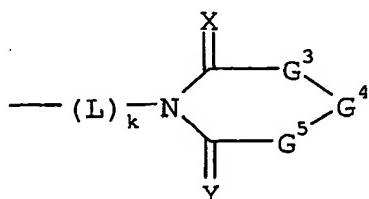


wherein G<sup>1</sup> and G<sup>2</sup> are independently selected from O, S, NR<sup>3</sup> or CR<sup>4</sup>R<sup>5</sup>, with the limitation that G<sup>1</sup> is not O or S when G<sup>2</sup> is O and that G<sup>1</sup> is not O or S when G<sup>2</sup> is NR<sup>3</sup>,

10 wherein R<sup>4</sup> and R<sup>5</sup> are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or -L<sup>3</sup>-R<sup>6</sup>, wherein L<sup>3</sup> is a linking group,

15 wherein R<sup>3</sup> and R<sup>6</sup> are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein two groups selected from each R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup> and L<sup>3</sup> together represent the necessary atoms to form a cyclic structure.

- 20 4. A polymer according to claims 1 or 2 wherein the N-imide group Q has the following formula



wherein G<sup>3</sup> to G<sup>5</sup> are independently selected from O, S, NR<sup>7</sup> or

- 40 -

$\text{CR}^8\text{R}^9$ , with the limitation that at least one group, selected from  $\text{G}^3$  to  $\text{G}^5$ , is  $\text{CR}^8\text{R}^9$  and that two neighbouring groups, selected from  $\text{G}^3$  to  $\text{G}^5$ , are not represented by O and S, by O and  $\text{NR}^7$ , by S and  $\text{NR}^7$  or by O and O,

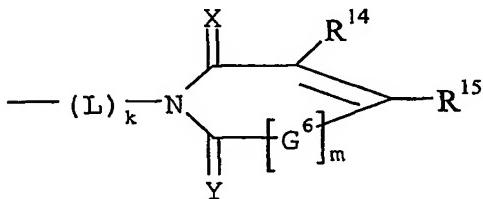
5 or wherein  $\text{G}^4$  is a linking group,

wherein  $\text{R}^8$  and  $\text{R}^9$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-\text{L}^4-\text{R}^{10}$ , wherein  $\text{L}^4$  is a linking group,

10 wherein  $\text{R}^7$  and  $\text{R}^{10}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein two groups selected from each  $\text{R}^7$ ,  $\text{R}^8$ ,  $\text{R}^9$ ,  $\text{R}^{10}$  and  $\text{L}^4$  together represent the necessary atoms to form a cyclic structure.

15

5. A polymer according to claims 1 or 2 wherein the N-imide group Q has the following formula



20 wherein  $\text{G}^6$  is a group selected from O, S,  $\text{NR}^{11}$  or  $\text{CR}^{12}\text{R}^{13}$ ,

wherein m is 0 or 1,

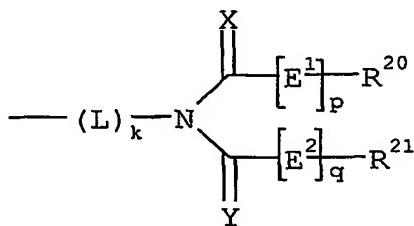
25 wherein  $\text{R}^{12}$  to  $\text{R}^{15}$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-\text{L}^5-\text{R}^{16}$ , wherein  $\text{L}^5$  is a linking group,

wherein  $\text{R}^{11}$  and  $\text{R}^{16}$  are independently selected from hydrogen or an

- 41 -

optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein two groups selected from each  $R^{11}$ ,  $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$ ,  $R^{16}$  and  $L^5$  together represent the necessary atoms to form a cyclic structure.

6. A polymer according to claims 1 or 2 wherein the N-imide group Q has the following formula



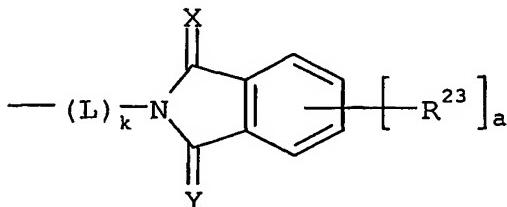
wherein  $E^1$  and  $E^2$  are independently selected from O, S,  $NR^{17}$  or  $CR^{18}R^{19}$ ,

wherein p and q are independently 0 or 1,

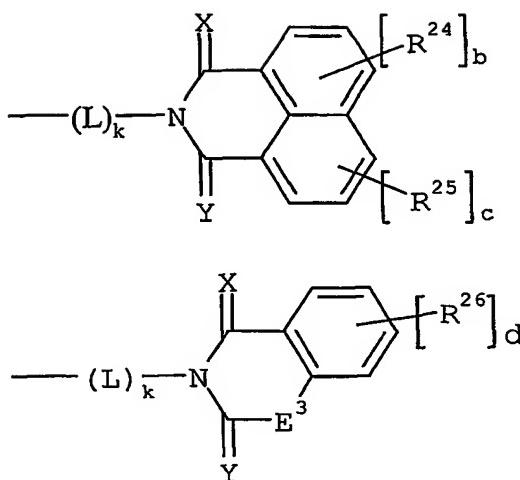
wherein  $R^{18}$  to  $R^{21}$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-L^6-R^{22}$ , wherein  $L^6$  is a linking group,

wherein  $R^{17}$  and  $R^{22}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

7..A polymer according to claims 1 or 2 wherein the N-imide group Q has one of the following formula:



- 42 -



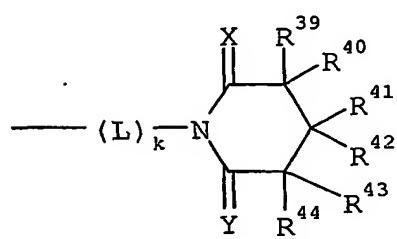
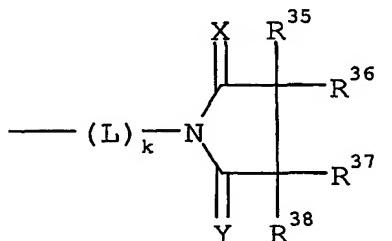
wherein each R<sup>23</sup> to R<sup>26</sup> are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,  
5 halogen, -SO<sub>2</sub>-NH-R<sup>27</sup>, -NH-SO<sub>2</sub>-R<sup>30</sup>, -CO-NR<sup>27</sup>-R<sup>28</sup>, -NR<sup>27</sup>-CO-R<sup>30</sup>, -NR<sup>27</sup>-CO-NR<sup>28</sup>-R<sup>29</sup>, -NR<sup>27</sup>-CS-NR<sup>28</sup>-R<sup>29</sup>, -NR<sup>27</sup>-CO-O-R<sup>28</sup>,  
-0-CO-NR<sup>27</sup>-R<sup>28</sup>, -O-CO-R<sup>30</sup>, -CO-O-R<sup>27</sup>, -CO-R<sup>27</sup>, -SO<sub>3</sub>-R<sup>27</sup>,  
-0-SO<sub>2</sub>-R<sup>30</sup>, -SO<sub>2</sub>-R<sup>27</sup>, -SO-R<sup>30</sup>, -P(=O)(-O-R<sup>27</sup>)(-O-R<sup>28</sup>),  
10 -O-P(=O)(-O-R<sup>27</sup>)(-O-R<sup>28</sup>), -NR<sup>27</sup>-R<sup>28</sup>, -O-R<sup>27</sup>, -S-R<sup>27</sup>, -CN, -NO<sub>2</sub>, -N(-CO-R<sup>27</sup>)(-CO-R<sup>28</sup>), -N-phthalimidyl, -M-N-phthalimidyl, or  
-M-R<sup>27</sup>, wherein M represents a divalent linking group containing 1 to 8 carbon atoms,  
15 wherein R<sup>27</sup> to R<sup>29</sup> are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,  
wherein R<sup>30</sup> is selected from an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,  
20 wherein a and d are independently 0, 1, 2, 3 or 4, wherein b and c are independently 0, 1, 2 or 3, wherein E<sup>3</sup> is selected from O, S, NR<sup>31</sup> or CR<sup>32</sup>R<sup>33</sup>,

- 43 -

wherein R<sup>32</sup> and R<sup>33</sup> are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or -L<sup>7</sup>-R<sup>34</sup>, wherein L<sup>7</sup> is a linking group,

5       wherein R<sup>31</sup> and R<sup>34</sup> are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

8. A polymer according to claims 1 or 2 wherein the N-imide group Q has one of the following formula:



10       wherein R<sup>35</sup> to R<sup>44</sup> are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, halogen, -SO<sub>2</sub>-NH-R<sup>45</sup>, -NH-SO<sub>2</sub>-R<sup>48</sup>, -CO-NR<sup>45</sup>-R<sup>46</sup>, -NR<sup>45</sup>-CO-R<sup>48</sup>,

15       -NR<sup>45</sup>-CO-NR<sup>46</sup>-R<sup>47</sup>, -NR<sup>45</sup>-CS-NR<sup>46</sup>-R<sup>47</sup>, -NR<sup>45</sup>-CO-O-R<sup>46</sup>, -O-CO-NR<sup>45</sup>-R<sup>46</sup>,

-O-CO-R<sup>48</sup>, -CO-O-R<sup>45</sup>, -CO-R<sup>45</sup>, -SO<sub>3</sub>-R<sup>45</sup>,

-O-SO<sub>2</sub>-R<sup>48</sup>, -SO<sub>2</sub>-R<sup>45</sup>, -SO-R<sup>48</sup>, -P(=O)(-O-R<sup>45</sup>)(-O-R<sup>46</sup>),

-O-P(=O)(-O-R<sup>45</sup>)(-O-R<sup>46</sup>), -NR<sup>45</sup>-R<sup>46</sup>, -O-R<sup>45</sup>, -S-R<sup>45</sup>, -CN,

20       -N(-CO-R<sup>45</sup>)(-CO-R<sup>46</sup>), -N-phthalimidyl, -M-N-phthalimidyl, or

-M-R<sup>45</sup>, wherein M represents a divalent linking group containing 1

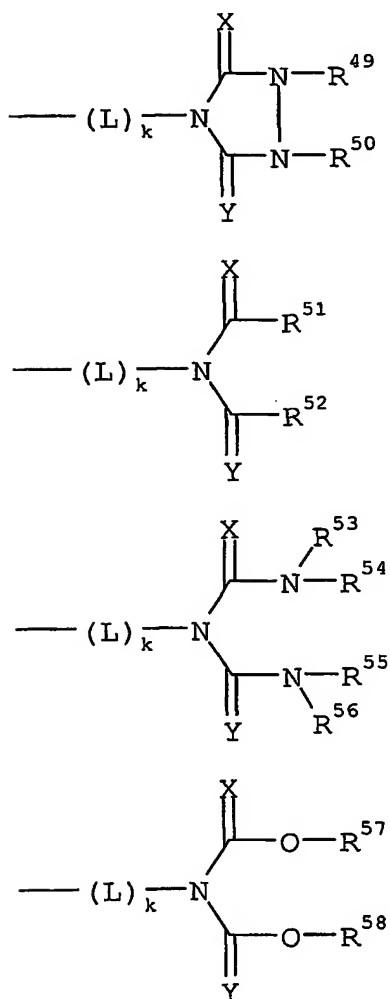
- 44 -

to 8 carbon atoms,

wherein R<sup>45</sup> to R<sup>47</sup> are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,

wherein R<sup>48</sup> is selected from an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

9. A polymer according to claims 1 or 2 wherein the N-imide group Q has one of the following formula:

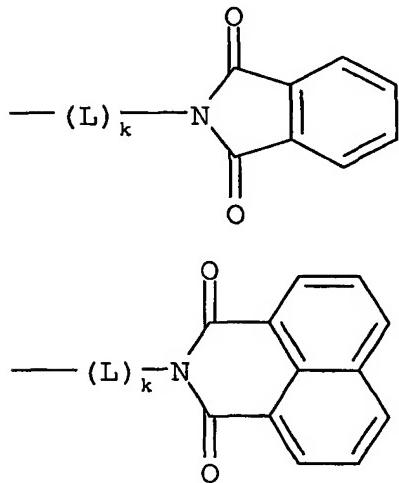


wherein R<sup>49</sup> to R<sup>56</sup> are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,

- 45 -

and wherein R<sup>57</sup> and R<sup>58</sup> are independently selected from an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

10. A polymer according to claims 1 or 2 wherein the N-imide group  
5 Q has one of the following formula:



11. A polymer according to any of the preceding claims, wherein  
said polymer comprising a phenolic monomeric unit is a novolac,  
10 resol or polyvinylphenol.

12. A heat-sensitive lithographic printing plate precursor  
comprising a support having a hydrophilic surface and an  
oleophilic coating, provided on the hydrophilic surface, said  
coating comprising an infrared light absorbing agent and a  
15 polymer according to any of the preceding claims.

13. A lithographic printing plate precursor according to claim 12,  
wherein said coating further comprises a dissolution inhibitor  
and wherein said precursor is a positive working lithographic  
printing plate precursor.

20 14. A lithographic printing plate precursor according to claim 13,  
wherein said dissolution inhibitor is selected from  
- an organic compound which comprises at least one aromatic  
group and a hydrogen bonding site, and/or

- 46 -

- a polymer or surfactant comprising siloxane or perfluoroalkyl units.

15. Use of a polymer, according to any of the claims 1 to 11, in a coating of a positive working heat-sensitive lithographic printing plate precursor, further comprising

- an infrared absorbing agent and
- a dissolution inhibitor,

for increasing the chemical resistance of the coating against printing liquids and press chemicals.

10 16. A lithographic printing plate precursor according to claim 12, wherein said coating further comprising a latent Brönsted acid and an acid-crosslinkable compound and wherein said precursor is a negative working lithographic printing plate precursor.

15 17. Use of a polymer, according to any of the claims 1 to 11, in a coating of a negative working heat-sensitive lithographic printing plate precursor, further comprising

- an infrared absorbing agent,
- a latent Brönsted acid and
- an acid-crosslinkable compound,

20 for increasing the chemical resistance of the coating against printing liquids and press chemicals.

